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Office of Environmental Cleanup

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## LETTER OF TRANSMITTAL

<b>Date:</b> April 5, 2016	<b>Project No:</b> B0101-88
<b>To:</b> Kristine Koch, U.S. EPA, Region 10	
<b>From:</b> Laura Jones	
<b>Re:</b> Final Remedial Investigation Report (Lower Willamette River, Portland Harbor Superfund Site, USEPA Docket No: CERCLA-10-2001-0240)	

The following is enclosed: ☐ for your use ☐ for your files ☒ per your request

Quantity	Item
1	Hardcopy replacement pages (Acronym List)
3	DVD sets

**Remarks:**

Enclosed are replacement hardcopy pages for the previously submitted Final RI Report and three updated DVD sets with the full electronic report.

Sent via:

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USEPA SF



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Portland Harbor RI/FS  
Final Remedial Investigation Report  
February 8, 2016

Office of Environmental Cleanup

## LIST OF ACRONYMS

1,1,1-TCA	1,1,1-trichloroethane
2-D	two dimensional
3-D	three dimensional
95 UCL	95 <sup>th</sup> percentile upper confidence limit
95 UPL	95 <sup>th</sup> percentile upper prediction limit
ADCP	Acoustic Doppler Current Profiler
AMEC	AMEC Earth & Environmental, Inc.
AOC	Administrative Order on Consent
AOPC	area of potential concern
ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	ambient water quality criteria
BaP	benzo(a)pyrene
BaPEq	benzo(a)pyrene equivalent
BEHP	bis-2(ethylhexyl) phthalate
BERA	baseline ecological risk assessment
BES	Bureau of Environmental Services
bgs	below ground surface
BHHRA	baseline human health risk assessment
bml	below mudline
BMP	best management practice
BNSF	Burlington Northern Santa Fe Railway Company
BOD	biological oxygen demand
BTEX	benzene, toluene, ethylbenzene, and xylenes
BTV	background threshold values
CBWTP	Columbia Boulevard Wastewater Treatment Plant
CCA	chromium copper arsenate
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CGF	coarse-grained flood deposits
cm	centimeter
cm/s	centimeter per second
cm/yr	centimeter per year
COI	contaminant of interest <sup>1</sup>
COPC	contaminant of potential concern <sup>2</sup>
cPAH	carcinogenic polycyclic aromatic hydrocarbon
CPD	Commission of Public Docks

<sup>1</sup> Prior deliverables and some of the tables and figures attached to this document may use the term "chemical of interest," which has the same meaning as "contaminant of interest" and refers to "contaminants" as defined in 42 USC 9601(33).

<sup>2</sup> Prior deliverables and some of the tables and figures attached to this document may use the term "chemical of potential concern," which has the same meaning as "contaminant of potential concern" and refers to "contaminants" as defined in 42 USC 9601(33).

CRAG	Columbia Region Association of Governments
CRBG	Columbia River Basalt Group
CRD	Columbia River datum
CRITFC	Columbia River Inter-Tribal Fish Commission
CSM	conceptual site model
CSO	combined sewer overflow
CSZ	Cascadia Subduction Zone
CT	central tendency
CWA	Clean Water Act
DDD	dichloro-diphenyl-dichloroethane
DDE	dichloro-diphenyl-dichloroethene
DDT	dichloro-diphenyl-trichloroethane
DDx	2,4' and 4,4'-DDD, -DDE, -DDT
DEA	David Evans and Associates, Inc.
DEQ	Oregon Department of Environmental Quality
DMR	Discharge Monitoring Report
DNA	deoxyribonucleic acid
DO	dissolved oxygen
DOC	dissolved organic carbon
DOI	U.S. Department of Interior
DNAPL	dense, nonaqueous-phase liquid
DSL	Oregon Department of State Lands
ECSI	Environmental Cleanup Site Information
EDB	ethylene dibromide
EDC	ethylene dichloride
EDI	equal discharge increment
EDI-VI	vertically integrated equal discharge increment
EDI-NS/NB	near-surface and near-bottom equal discharge increment transect pair
EFC	Emergency Fleet Corporation
EFDC	Environment Fluid Dynamics Code
Eh	oxidation-reduction potential
EOSM	Evrast Oregon Steel Mills
EPC	exposure point concentration
ERA	ecological risk assessment
ERIS	Emergency Response Information System
ERM	Environmental Resources Management
ESA	Endangered Species Act
EVS	EVS Environmental Consultants, Inc.
Fed. Reg.	Federal Register
FFA	fill, fine-grained facies of flood deposits, and recent alluvium
f <sub>oc</sub>	fraction of organic carbon
FS	feasibility study
FSP	field sampling plan
FSR	field sampling report
ft	foot



ft/s	foot per second
ft/yr	foot per year
gamma-HCH	gamma-hexachlorocyclohexane (Lindane)
g/day	gram per day
GIS	geographic information systems
GLISP	Guild's Lake Industrial Sanctuary Plan
GPS	global positioning system
GSI	Groundwater Solutions, Inc.
GWPA	groundwater pathway assessment
HAI	Hahn and Associates, Inc.
HI	hazard index
HPAH	high-molecular-weight polycyclic aromatic hydrocarbon
HQ	hazard quotient
HRGC	high resolution gas chromatography
HRMS	high resolution mass spectrometry
HSP	health and safety plan
HST	hydrodynamic and sediment transport
ID	identification
IRIS	Integrated Risk Information System
ISA	initial study area
JSCS	joint source control strategy
K <sub>d</sub>	solid/water partitioning coefficient
kg/yr	kilogram per year
km	kilometer
km <sup>2</sup>	square kilometer
K <sub>oc</sub>	organic carbon partitioning coefficient
K <sub>ow</sub>	octanol-water partitioning coefficient
LASAR	Laboratory Analytical Storage and Retrieval
LISST	laser <i>in situ</i> scattering and transmissometer
LOE	line of evidence
LPAH	low-molecular-weight polycyclic aromatic hydrocarbon
LRMS	low resolution mass spectrometry
LWG	Lower Willamette Group
L/yr	liter per year
m	meter
MCL	maximum contaminant level
mg/kg-day	milligram per kilogram per day
MGP	manufactured gas production
mg/y	million gallons per year
MHWM	mean high water mark
mm	millimeter
MNR	monitored natural recovery
MOA	memorandum of agreement
MOU	memorandum of understanding
MRL	method reporting limit



MS4	municipal separate storm sewer system
MSL	mean sea level
MTBE	methyl <i>tert</i> -butyl ether
Mw	moment magnitude
MWH	MWH Americas, Inc.
mya	million years ago
NAPL	nonaqueous-phase liquid
NASSCO	National Steel and Shipbuilding Company
NATA	National Air Toxics Assessment
NAVD88	North American Vertical Datum of 1988
NB/NS	near bottom and near surface
NFA	no further action
NGVD29/47	National Geodetic Vertical Datum of 1929 through the Pacific Northwest Supplemental Adjustment of 1947
NJADN	New Jersey Atmospheric Deposition Network
nm	nanometer
N/m <sup>2</sup>	Newton per square meter
NMH	no measurable height
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NTCRA	non-time-critical removal action
OAR	Oregon Administrative Rules
OC normalized	organic carbon normalized
ODFW	Oregon Department of Fish and Wildlife
ODHS	Oregon Department of Human Services
ODOT	Oregon Department of Transportation
OHW	ordinary high water
OHWM	ordinary high water mark
OLW	ordinary low water
OSSA	Oregon State Sanitary Service Authority
PAH	polycyclic aromatic hydrocarbon
Pb	lead
PBDE	polybrominated diphenyl ether
PCB	polychlorinated biphenyl
PCDD	polychlorinated dibenzo-p-dioxin
PCDD/F	polychlorinated dibenzo-p-dioxin/furan
PCDF	polychlorinated dibenzofuran
PCP	pentachlorophenol
PGE	Portland General Electric
pg/g	picogram per gram
pg/L	picogram per liter
PNG	PNG Environmental, Inc.
POC	particulate organic carbon

PPA	Plywood Pioneers Association
ppm	parts per million
PRD	Portland River Datum
PTI	PTI Environmental Services
PVC	polyvinyl chloride
QA/QC	quality assurance and quality control
QAPP	quality assurance project plan
$r^2$	coefficient of determination
RfD	reference dose
RI	remedial investigation
RI/FS	remedial investigation and feasibility study
RM	river mile
RME	reasonable maximum exposure
SAIC	Science Applications International Corporation
SAP	sampling and analysis plan
SCRA	site characterization and risk assessment
SCSR	site characterization summary report
SEA	Stiplin Environmental Associates
Site	Portland Harbor Superfund Site
SLERA	screening-level ecological risk assessment
SLV	screening level value
SOP	standard operating procedure
SOW	statement of work
SPI	sediment profile imaging
SP-NB	single point, near bottom
SP-NS	single point, near surface
SP-VI	single point, vertically integrated
SQV	sediment quality value
SRM	Sandy River Mudstone
SSO	sanitary sewer overflow
STA	Sediment Trend Analysis®
SVOC	semivolatile organic compound
TBT	tributyltin ion
TCDD	tetrachlorodibenzo-p-dioxin
TCDF	tetrachlorodibenzofurans
TE	transport environment
T-EDI-NS/NB	near-surface and near-bottom equal discharge increment transect pair
T-EDI-VI	vertically integrated equal discharge increment transect
TEF	toxicity equivalency factor
TEQ	toxic equivalent concentration
TMDL	total maximum daily load
TMP	truck manufacturing plant
TOC	total organic carbon
TPH	total petroleum hydrocarbons
TRV	toxicity reference value

TSCA	Toxic Substance Control Act
TSS	total suspended solids
T-VI (E, M, W)	vertically integrated, three segment (east, mid-channel, west) transect
TZW	transition zone water
UCL	upper confidence limit
UPL	upper prediction limit
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USC	U.S. Code
USCG	U.S. Coast Guard
USC&GS	U.S. Coast and Geodetic Survey
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VI (E, M, W)	vertically integrated: east-middle-west
VOC	volatile organic compound
WHO	World Health Organization
WISCO	Willamette Iron and Steel Company
WQC	water quality criteria
WWII	World War II
XAD	hydrophobic polyaromatic resin
yd <sup>3</sup>	cubic yard
μ	micron
μg/kg	microgram per kilogram
μg/L	microgram per liter
μm	micrometer
τ	tau